The Role of Indigenous Seeds in Africa's Food Security

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[Photo: Dr Melaku Worede in an experimental sorghum patch, Lesotho.]

"The farmer knows best!" was the key message at a recent international workshop in Lesotho on Africa's food crisis and the use of indigenous seeds. Opening the event, Mr M. Masilo, Lesotho's permanent secretary for agriculture, got straight to the point:

"Let me implore you to recognize the role of local farmers in the conservation of plant genetic resources," he stated at the 9th International Training Workshop on Sustainable Management, Development and Utilization of Plant Genetic Resources. "By conscious and continuous selection they have created the immense genetic variations on which agriculture depends. Not enough use has been made of farmers' indigenous knowledge acquired through long years of practical agricultural activities. It is time this knowledge is harnessed to save food security."

Masilo noted that Lesotho used to export foodstuffs to South Africa. "[Our] people were not so educated at that time, and the land did not look so devastated. What went wrong and why?"

Wrong baskets

Part of the problem is that plant breeders have often put their eggs in the wrong baskets, according to Awegechew Teshome, an Ethiopian plant breeder and former consultant to the International Development Research Centre, who now works at the International Plant Genetic Resources Institute in Rome. "Science doesn't have all the answers. It has failed totally at growing food in marginal areas," he said during an interview last year.

In his doctoral thesis at Carleton University in Ottawa, Teshome documented how traditional farmers in Ethiopia are helping to maintain agricultural diversity. He showed that they nearly always select the right choices of landraces (or 'folkseeds') for difficult growing conditions involving drought or pests. While working with the 'Seeds of Survival' (SOS) program supported by USC Canada, he found that Ethiopian farmers in one 500 hectare-area were working with nearly 60 different varieties of sorghum.

Comparable yields

At the training workshop, which was also sponsored by USC Canada, Tesfaye Tessema helped lay to rest the view that farmers' seeds can't match the yields claimed for imported hybrid varieties of maize and wheat. In his own experiments conducted over the past eight years, elite landrace selections of durum wheat (called 'composites') outperformed the high-yielding hybrid varieties in areas of Central Shewa by an average 25 percent. His composites are now in use on 4,000 farms.

Dr Tessema added that in the Ethiopian highlands, native barley and durum wheat "are probably among the most threatened" by newly introduced varieties. His colleague, Dr Melaku Worede, a special advisor to the SOS program, told the workshop how a gene from Ethiopian barley saved the North American barley crop when it was attacked by yellow dwarf virus.

Setbacks

Other participants from a dozen African nations told of setbacks to plant genetic resources in their countries. For example, Emmanuel Antwi, of the Ghana Organic Agriculture Network, noted that the Sasakawa 2000 aid program of hybrid maize (coming complete with subsidized fertilizer and pesticides) had produced good yields for a few years in Ghana. But soils were soon depleted and salinated, and fertilizer costs soared when subsidies were cut. Meanwhile, local farmers had abandoned their traditional seeds. His network is now trying to conserve and multiply the surviving seeds, with help from the national gene bank's collection.

The Basotho people of Lesotho are acutely aware of the disappearance of their genetic resources: even their national flower, the spiral aloe, is in danger of extinction. One gleam of hope lies in the slow but steady success of J. J. Machobane, an 83-year-old visionary who has popularized a system of intensive intercropping on one-acre farms with year-round harvesting of seven crops. But potatoes, the basis of the Machobane system, are still imported as seed from South Africa.

SOS principles

Following field visits, the workshop participants agreed that the SOS principles of in-situ conservation could — indeed, should — be applied to the Machobane farms. Thanks to the work of Drs Teshome, Worede, and Tessema, the Ethiopian SOS experience may be replicated quite widely in southern Africa.

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